Claims Listing

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of carrying out an amplification reaction, said method comprising supplying to a reagent well in a disposable unit a reaction mixture comprising (a) a sample which contains or is suspected of containing a target nucleic acid sequence (b) primers, nucleotides and enzymes required to effect said amplification reaction and (c) a buffer system, and subjecting the disposable unit to thermal cycling conditions such that any target nucleic acid present within the sample is amplified; wherein the disposable unit comprises a thermally conducting layer and a facing layer having one or more reagent wells of up to 1000 microns in depth defined therebetween; and the reaction mixture comprises ~~at least one of the following:~~

~~A)~~ a buffer system wherein the pH is above 8.3~~;~~

~~B) a detergent; and/or~~

~~C) a blocking agent~~.

2. (Cancelled).

3. (Currently Amended) The method according to claim ~~2~~ 1 wherein the pH of the buffer system is from 8.7-9.0.

4. (Previously Presented) The method according to claim 1 wherein the buffer system comprises from 30-70mM Tris HCl.

5. (Previously Presented) The method according to claim 4 wherein the buffer system comprises about 50mM Tris HCl pH 8.8 at 25°C.

6. (Previously Presented) The method according to claim 1 wherein the reaction mixture further comprises from 0.01 to 0.1% v/v detergents.

7. (Cancelled).

8. (Previously Presented) The method according to claim 1 wherein the reaction is effected in the presence of a blocking agent which comprises bovine serum albumin (BSA).

9. (Previously Presented) The method according to claim 1 wherein the thermally conducting layer of the disposable unit is metal.

10. (Previously Presented) The method according to claim 9 wherein the thermally conducting metal layer of the disposable unit is aluminum.

11. (Previously Presented) The method according to claim 9 wherein the thermally conducting metal layer is coated with a plastic or other biocompatible layer.

12. (Previously Presented) The method according to claim 11 wherein the biocompatible layer is polystyrene.

13. (Previously Presented) The method according to claim 1 wherein the thermally conducting layer and the facing layer of the disposable unit are heat-sealed together.

14. (Previously Presented) The method according to claim 1 wherein the facing layer of the disposable unit comprises a thermally conducting layer.

15. (Previously Presented) The method according to claim 1 wherein the facing layer of the disposable unit is of a transparent biocompatible plastics material.

16. (Previously Presented) The method according to claim 1, wherein the disposable unit further comprises a spacing layer having holes and channels to define reagent wells and channels adhered between the thermally conducting layer and the facing layer.

17. (Currently Amended) The method according to claim 16 wherein the layers are adhered together by means of a biocompatible adhesive and the reaction is effected in the presence of a blocking agent which comprises bovine serum albumin.

18. (Previously Presented) The method according to claim 1 wherein spacer means are provided within each reagent well.

19. (Previously Presented) The method according to claim 1 wherein the reagent wells are pre-dosed with dried reagents.

20. (Previously Presented) The method according to claim 19 wherein the dried reagents are PCR reagent primers or probes.

21. (Previously Presented) The method according to claim 1 wherein the disposable unit contains a plurality of reagent wells and each reagent well is fed by a common channel which has a single opening to the outside of the unit.

22. (Previously Presented) The method according to claim 1 wherein the disposable unit is placed in apparatus comprising at least two heating blocks, each of which is under the control of an automatic temperature control means, and conveyor means for holding and transferring a disposable unit sequentially between the blocks.

23. (Previously Presented) The method according to claim 22 wherein the apparatus further comprises an actuator above each block and arranged to clamp the disposable unit against the respective block.

24. (Previously Presented) The method according to claim 22 wherein the at least one of the heating blocks is segregated and each segment is held at a different temperature.

25. (Previously Presented) The method according to claim 1 wherein the disposable unit is integral with or arranged in close proximity to an electrically conducting polymer.

26. (Previously Presented) The method according to claim 1 wherein the presence of labelled reagents within the disposable unit is monitored.

27. (Currently Amended) A kit for conducting a polymerase chain reaction, said kit comprising a buffer system comprising a buffer of pH in excess of 8.3, and at least one disposable unit comprising a thermally conducting layer and a facing layer having one or more reagent wells of up to 1000 microns depth defined there between, wherein the layers are adhered together by means of a biocompatible adhesive.

28. (Previously Presented) The kit according to claim 27 wherein the thermally conducting layer of the disposable unit is a metal layer.

29. (Currently Amended) A disposable unit for conducting a thermal cycling reaction, said unit comprising a thermally conducting layer and a facing layer having a plurality of reagent wells defined therebetween, a buffer system comprising a buffer of pH in excess of 8.3, wherein all the reagent wells are fed by a common channel which includes a single opening to the outside of the unit, wherein the layers are adhered together by means of a biocompatible adhesive.

30. (Previously Presented) The disposable unit according to claim 29 wherein the reagent wells are predosed with dried reagents.

31. (Previously Presented) The disposable unit according to claim 30 wherein the dried reagents are PCR reagent primers or probes.

32. (Previously Presented) The disposable unit according to claim 29 wherein said thermally conducting layer is a metal layer.

33. (Previously Presented) A method of filling a disposable unit according to claim 29 with a liquid, said method comprising using air pressure to force liquid into said unit.

34. (Previously Presented) A method of filling a disposable unit for conducting thermal cycling reactions with a liquid, comprising:

using air pressure to force liquid into the disposable unit;

wherein the disposable unit for conducting thermal cycling reactions comprises a thermally conducting layer and a facing layer having a plurality of reagent wells defined therebetween; wherein all the reagent wells are fed by a common channel which includes a single opening to the outside of the disposable unit;

and wherein the method comprises placing the disposable unit and said liquid in a vacuum chamber, reducing pressure in said vacuum chamber such that air is evacuated from the disposable unit, immersing at least the single opening of said unit in said liquid, and increasing pressure in said vacuum chamber such that liquid is forced to enter the disposable unit through the single opening.

35. (Previously Presented) The method according to claim 34 wherein the single opening is immersed in said liquid before the pressure in the vacuum chamber is reduced.